

Strengthening Conventional Deterrence in Europe

A Program for the 1980s

European Security Study Report of the Special Panel:

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ESECS II

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CHAPTER I

ESECS Concepts for Improving NATO Deterrence and Defense

After analyzing the implications of nuclear parity and the conventional imbalance between NATO and the Warsaw Pact (WP), the European Security Study (ESECS) concluded that NATO faced a compelling need for stronger conventional capabilities in order to achieve its purposes of deterrence, defense, and reassurance.

The ESECS Steering Group sought conventional improvements based on several premises:

- That NATO strategy would continue to be based on flexible response and forward defense.
- That the Allied democracies would face serious economic and political constraints on substantially increasing manpower or funds for defense.
- That NATO could base an effective conventional defense on exploiting the vulnerabilities of Soviet strategy and operations without attempting to match the Warsaw Pact tank-for-tank and plane-for-plane.

The original ESECS Report concluded that NATO could greatly strengthen its conventional capabilities by making better use of more advanced conventional systems to perform specific key missions to blunt, disrupt, and counter any Soviet conventional aggression.

As a prelude to our Report, we review the Soviet strategy and operational concepts, their vulnerabilities, and the NATO missions required to exploit them. In succeeding chapters, we will

discuss each mission and the manner in which advanced technology can help to perform it.

SOVIET STRATEGY AND OPERATIONAL CONCEPT

The Soviet Union would prefer to pursue its goals by means other than direct military attack. It seeks to use its manifest military power as an instrument of coercion and political manipulation to serve its aims and interests. NATO's strategy seeks to deter any war - nuclear or conventional - and to frustrate Soviet intimidation and political coercion of the Alliance short of war. To be credible, however, in order to inhibit aggression and to maintain the confidence of its own citizens, NATO's deterrent must be based on a robust capacity to resist and stop aggression should it occur.

If the Soviet Union should decide to attack NATO, its overall military objective would be a swift conventional campaign victory. Success would depend on three factors:

- Surprise at both strategic and tactical levels. Since NATO requires a period of warning to mobilize and fully deploy its forces, surprise would be intended to catch NATO forces inadequately prepared.
- An integrated combined arms offensive. It would employ air power and surface-to-surface missiles, forward deployed ground forces to launch the initial attack and fresh follow-on forces for exploitation. These complementary forces are the components of a unified campaign and would undertake their missions concurrently.
- Combat momentum. This would be developed from superior numbers, concentrated air and ground firepower, and high-speed operations.

NATO's capacity to defend against such an offensive would depend on the ability to disrupt or counter all three factors - surprise, combined arms integration and momentum - and to deter aggression by undermining Soviet confidence in their ability to achieve them.

Surprise

Soviet strategy places high priority on both adequate preparation of their forces for an offensive and the masking of such preparations. The current forward deployment of large numbers of ready and highly mobile ground forces with substantial organic transport and supply create the potential for catching NATO's forces out of position and in a vulnerable state at the outset of hostilities to a much greater extent than formerly. In the past, Warsaw Pact aircraft also required forward deployment before launching an attack. Today third generation WP aircraft have adequate range to reach the depth of the Central Region without forward basing. Even limited surprise in masking air preparation would enhance the effectiveness of initial and succeeding attacks by these forces against the NATO TNF and conventional air elements.

Combined Arms Force Components

Warsaw Pact modernization has emphasized the ability to mass diverse forms of firepower in coordination with highly mobile assaulting combat formations. Each major combined arms component - aircraft and missiles, initial assaulting forces and follow-on forces - has its own set of objectives.

WP air forces with their long range would have the mission of degrading NATO's TNF and conventional air forces and of attacking other priority targets. These are today complemented by improved tactical surface-to-surface missiles deemed to have conventional capabilities, as well as the chemical and nuclear capabilities to which their predecessors were limited. Their introduction since the ESECS Report would greatly enhance large-scale Warsaw Pact air operations focused on NATO's TNF and conventional air. (This Report does not attempt to deal with the problems of direct defense against Warsaw Pact conventional surface-to-surface missiles, which constitute an important and growing threat. It has not been possible for the Panel to examine this issue at this time and on an unclassified basis with the thoroughness and precision required. It is, however, a matter that must receive high-priority NATO and national attention).

Initial assaulting forces of the Warsaw Pact armies would have the objective of achieving multiple, deep penetrations of NATO's forward defenses. New generations of tanks and infantry fighting vehicles have been introduced at rates exceeding NATO's modernization. Self-propelled artillery and a new generation of air defenses as well as attack helicopters and modern close air support aircraft add new dimensions to their firepower. In addition, the Soviets have created combined arms units called "Operational Maneuver Groups" to provide additional shock and momentum for exploitation.

WP follow-on forces would be used to exploit the successes of the initial assaulting forces and complete the task of seizing objectives deep in NATO territory and destroying NATO's forces. Improvements in mobility and sustaining power have made WP forces an immediate threat, even though they might initially be deployed well to the rear. Motorized rifle and tank divisions have been better balanced in combat and support elements in order to provide greater flexibility in their use. Finally, dense and modernized air defenses would provide protection so that fresh and unattrited follow-on forces are available for exploitation.

For each major force component, improvements in range, firepower, and mobility have given them the ability to take advantage of surprise and deploy and employ combined arms forces.

Momentum

Ensuring a high degree of momentum and rapid exploitation of any penetration of NATO's forward defense is a basic requirement of Soviet operational concepts. Whatever the doctrine followed—classical breakthrough operations with massing of armor, or the employment of Operational Maneuver Groups on multiple axes of attack—the WP must position follow-on formations in nearby assembly areas in order to be able to sustain the attack by relieving depleted forward elements or by exploiting initial successes. To bring the follow-on forces to bear at the right time and place would require competent and continuous command and control to provide overall coherence to the campaign.

While the threat is substantial, we believe NATO can enhance its capabilities to deny those options that might assure

the Soviets the potential for a swift conventional victory. To do this, it must, however, deal with and solve several simultaneously occurring problems, each one of which is substantial.

SOVIET/WARSAW PACT UNCERTAINTIES AND VULNERABILITIES

The overall Soviet concept while well conceived is not without its problems, and its success certainly cannot be regarded by them as guaranteed. In particular, they cannot avoid substantial uncertainty about:

- the achievement of strategic and tactical surprise,
- the adequacy of their largely untried concepts and forces,
- their capabilities for initiative and flexibility at lower levels of command,
- the reliability of their Warsaw Pact allies,
- nuclear escalation.

In addition, the Soviets face inherent potential vulnerabilities in their planned operations. They include:

- the requirement for a swift victory,
- the highly preplanned and rigid nature of Soviet offensive operations,
- the dependence on an uninterrupted flow of fresh forces,
- the dependence on roads and open country for speed of advance (while Western Europe becomes increasingly urban),
- the need for competent and continuous command and control to achieve the full effectiveness of the combined arms effort,

- dependence on reliable lines of communication, and
- the need to concentrate forces for offensive operations, thereby making them vulnerable to NATO conventional and nuclear firepower.

In our judgment NATO forces with planned and recommended improvements could hold the initial WP assault and successfully contain it, providing NATO acted promptly on the warning that probably would be available. Enhancing NATO's ability to frustrate the Warsaw Pact threat to its Theater Nuclear Forces and air power and to delay and disrupt the follow-on forces would put in jeopardy the overall Soviet concept.

If surprise is not achieved, the major WP combined arms force components would have to accomplish their offensive missions against alerted and prepared NATO defenses of all kinds. Each component of the attack has its own vulnerability. For example, should the NATO Theater Nuclear Force be left coherent and not neutralized, a major uncertainty and threat to any Soviet aggression would be the risk of escalation. Similarly, an inability to bring the follow-on WP forces to bear in a timely, effective manner would entail grave consequences for the campaign.

Warsaw Pact Air Power

In order to carry out its two primary missions in a conventional attack, Warsaw Pact air power must be applied repeatedly for a period of at least several days to destroy significant portions of NATO's Theater Nuclear Forces and cause a meaningful drawdown in NATO conventional air power. Current Soviet air force doctrine implies multi-wave, highly coordinated air attacks which might involve between 1,000 and 2,000 aircraft executing one, two or three major attacks per day.

WP air bases are of two types: main operating bases (MOBs) and dispersal operating bases (DOBs). Aircraft must be generated, recovered and regenerated at many bases to meet the total offensive requirements. These activities must be carefully synchronized so that aircraft can be employed in full-scale,

coordinated attacks. Thus the process would be vulnerable to disruption by NATO attacks against their airfields.

Warsaw Pact MOBs are hardened and their aircraft are in hardened shelters. Therefore, disruption must be based on attacking runways and taxiways promptly to deny the use of the MOBs, in order to reduce their sortie rate and the size and coordination of their attacks. In addition, attacks on WP shelters with appropriate munitions would damage aircraft within them and add significantly to the drawdown of WP air strength in the early days of a conflict. At DOBs, aircraft are unsheltered and vulnerable; attacking aircraft at these bases would reduce the weight of the attack and further disrupt the overall operation.

Initial Assaulting Forces

Warsaw Pact combined arms formations would have to launch a substantial number of simultaneous attacks. For this purpose, several combined arms elements would have to be synchronized. This is particularly critical for fire support - both air and artillery. Without effective fire support to suppress NATO's highly proliferated antitank guided missiles (ATGMs), Warsaw Pact armor would be put in jeopardy. The great dependence of the attack on Warsaw Pact armor makes its defeat one major key to blunting the initial assault and reducing Soviet confidence in the success of any possible aggression.

Follow-on Forces

The greater part of Warsaw Pact combat power resides in the follow-on forces at the outset of any possible campaign. Unless they were brought to bear in a timely manner, a quick victory could not be assured. However they are organized (as second echelon divisions, operational maneuver groups, reserves, etc.), all follow-on forces have similar vulnerabilities. They must move at the same time on lines of communications and through choke points which, if blocked, could impede movement and produce concentrations of congested forces which are lucrative targets.

Follow-on forces must ultimately move on exposed roads and queue up for refueling in the final stages of commitment which would be in the last 100 km or so from the Forward Line of

Our Troops (FLOT). Timely attacks against those exposed forces could delay and disrupt their commitment; attrition would reduce their impact.

Command/Control Vulnerabilities

Coherent and continuous command/control and supporting communications would be needed to manage both the overall combined arms campaign and the execution of the several complementary missions. Given Soviet propensities for top-down control, the flexibility rests at higher levels of command with substantial rigidity at the lower levels. These higher levels of command are small in number.

SUMMARY OF ESECS RECOMMENDED IMPROVEMENTS

In order to counter the overall Soviet concept of surprise, combined arms action and combat momentum, the ESECS Report recommended better use of advanced systems to improve NATO's conventional capabilities in a number of areas.

- **Surveillance and Target Acquisition: NATO must improve its all-weather, day-night surveillance and target acquisition capabilities, especially its long-range capabilities. Using high quality data systems NATO should be able to distribute necessary target acquisition information in parallel to intelligence, assessment, decision-making and fire-direction means (both ground and air) as appropriate. To improve ground-based air defense, NATO should accelerate dissemination of the existing real-time air situation to fire direction centers. To make fire delivery means more effective, NATO should acquire unmanned capabilities for target acquisition.**
- **Blunting the Initial Warsaw Pact Attack: With the availability of real-time target acquisition, NATO should acquire advanced munitions, mines, and delivery systems to provide better capability to counter armored attacks and to deal with massed artillery, attack helicopters, and fixed wing aircraft.**

- **Countering Warsaw Pact Air Power:** To disrupt Warsaw Pact air operations, NATO should develop a capability based on advanced weapons to neutralize Warsaw Pact airfields.
- **Delaying, Disrupting and Degrading Warsaw Pact Follow-on Forces:** In order to disrupt and attrite follow-on forces, NATO should take advantage of natural chokepoints and the vulnerability to attack of exposed forces on the move. Improved target acquisition and advanced munitions and delivery systems offer the means to perform these missions at the conventional level.
- **Disrupting Warsaw Pact C3:** NATO should acquire better capabilities to attack both fixed (hardened) and soft (movable) command centers for Front, Army and Division. These should be based on improved target acquisition and munitions.
- **Improving NATO C3:** The endurance, survivability and efficiency of NATO C3 could be improved by using civilian telephone and telegraph systems and adaptation of commercial equipment for the rapid processing and management of information for assessment, decision-making and mission execution.

PURPOSE OF THIS REPORT

This Report will develop and discuss each of these proposals in greater detail. For that purpose the Report is organized mainly by the primary missions which NATO must perform: Surveillance and Target Acquisition (Chapter II); Defeating the Initial Warsaw Pact Attacks (Chapter III); Countering the Warsaw Pact Air Offensive (Chapter IV); Defeating the Warsaw Pact Follow-On Ground Forces Threat (Chapter V); Disrupting Warsaw Pact C3 (Chapter VI); and Improving NATO C3 (Chapter VII). Chapter VIII summarizes the estimated costs for all of these proposals, identifies potential sources, and discusses the potential deployment schedule for the

proposed improvements. Chapter IX examines the relationship of our proposals to stability and arms control.

In the course of our discussions, we also consider questions raised regarding the original ESECS proposals: Do they unduly stress attack of follow-on forces at the expense of blunting the initial attack? Are the weapons feasible and would they be operationally effective? Would the improvements be provocative or create instability? Would they hamper arms control?

In each Chapter we refer to specific systems in order to provide concrete examples of the technological opportunities available, and to develop exemplary cost estimates. We stress that specific systems are cited only as examples and are not intended to prejudge their relative cost-effectiveness or utility in comparison with other alternative systems. The cost estimates (stated in 1984 dollars) are regarded as reasonable and realistic; actual costs could be higher as a result of: (1) higher than anticipated costs for research and development; (2) inflation; (3) the selection of different systems; (4) the purchase of larger inventories; and other factors.

CHAPTER II

Surveillance and Target Acquisition

In order to counter the central elements of the Soviet campaign concept (surprise, combined arms and momentum), NATO needs improved capabilities for surveillance and target acquisition:

- to minimize surprise through the ability to develop a comprehensive and dynamic picture of Warsaw Pact force deployment and activity to a depth of approximately 200 km. In our judgment, we have the capabilities needed to monitor Warsaw Pact air activity. We need a similar capability for ground forces.
- to assist in disrupting the initial combined arms assault with real-time target acquisition information at depths of up to 70 km in order to locate enemy artillery batteries and battalions and regiments behind the contact battle, helicopter operating bases, key command elements and air defense units under day or night, all-weather conditions.
- to assist in the attack on follow-on forces by providing target acquisition information in real time to locate deep (30 to 150 km) concentrations under day and night all-weather conditions.

For this purpose, the system should emphasize:

- Systems with quality suitable for targeting. (Less precise surveillance assets would be used for situation assessment and focusing the more accurate target acquisition systems.)

- Parallel dissemination of information to potential users - fire units, command centers, and intelligence units in the form and amount suitable for each user's needs and handling capacity.
- Rapid machine processing of targeting information in standardized formats without the need for human handling.

SURVEILLANCE AND TARGET ACQUISITION SYSTEMS

The need for improved surveillance and target acquisition has long been recognized. Until recently the limitation was technology. Now, however, technologies in four key areas - sensors, sensor platforms, data transmission and information management - provide the means to deploy greatly improved target acquisition capabilities. Three types of systems are now available:

- standoff airborne radars and emission locators,
- counterbattery radars, and
- remotely piloted vehicles (RPVs) for penetrating target acquisition.

Together these will contribute to meeting the need for improved target acquisition capabilities applicable to the full range of enemy targets.

Standoff Airborne Radars

Advanced ground surveillance radars, such as the Advanced Synthetic Aperture Radar System (ASARS) and the Joint Surveillance Target Attack Radar System (JSTARS), and emitter location systems such as the Precision Location Strike System (PLSS), are not affected by adverse weather or darkness. Mounted on airborne platforms (helicopters or fixed wing aircraft) they could stand back from the line of contact for survivability and provide the means to see well into the enemy's rear (30 to 150 km)

to detect both moving and stationary targets of several types; e.g., armored vehicle columns and helicopter forward area rearming and refueling points. Older non-real-time systems of this type are the UPD-4 and UPD-6 radars which are currently in service with the US and FRG ground forces.

The primary limitations of airborne radar systems are: (1) they now have limited discrimination capability (e.g., ability to distinguish between a truck and a tank); (2) they cannot see behind hills, through heavy vegetation, or behind buildings; and (3) they might be locally "fooled" by countermeasures such as radar reflectors or other decoys. Despite these limitations, we believe that such sensor systems are extremely valuable. They can provide a real-time "picture" of large-scale enemy force deployment and movement under all weather conditions during day or night. Even with their limited resolution, they can serve quite adequately as target acquisition devices and to vector aircraft or missile attacks against battalion- or company-sized targets and air defense arrays.

Real-time imaging radars capable of locating such targets at ranges of 30 km to 150 km, could also be used laterally or against shallow target formations. Thus, they have the same virtues as long-range firepower means - flexibility for multiple uses and concentration against a specific area of interest.

Counterbattery Radars

Field artillery plays a vital role in the Warsaw Pact's concept of operations - as evidenced by their massive investment in such weapons. They currently enjoy a superiority of at least 4:1 in artillery and mortar weapons deployed in Central Europe. To overcome this advantage NATO must direct its counterbattery forces most expeditiously and effectively. Several advanced counterbattery radars for this purpose have been developed and are now being deployed. These operate by tracking incoming enemy artillery and mortar projectiles and rapidly compute the locations from which those rounds were fired. These radars, such as the US Army's Fire Finder, can identify the position of an enemy artillery battery or mortar within a few tens of meters based on the first round it fires. The information from these radars could be rapidly passed to a NATO division's field artillery command post or directly to an artillery battery's fire direction